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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
SCHNIZER, RICHARD A	

ART UNIT	PAPER NUMBER
1635	

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/457,771	EMANUELE ET AL.	
	Examiner	Art Unit	
	Richard Schnizer, Ph. D	1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,22,23,25,27-31 and 37-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,22,23,25,27-31 and 37-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 January 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/7/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/26/05 has been entered.

Claims 1, 22, 23, 25, 27-31, 37, and 38-40 are pending and under consideration.

The previously indicated allowability of claim 37 is withdrawn in view of new grounds of rejection under 35 USC 112, second paragraph.

Information Disclosure Statement

An information disclosure statement was received and entered on 10/7/05. Applicant states that Citation No. 1 (JPN 60-105630) is a corresponding patent of Citation No. 2 (EP 0135376). The Examiner takes this to be a concise statement of the relevance of JPN 60-105630.

Drawings

The drawings filed 1/3/05 are accepted by the Examiner.

Comment/Question

Claim 38 is drawn to the "composition of claim 37". While claim 37 does recite a composition, the claim itself is a method. Did Applicant wish to claim in claim 38 a method?

Rejections Withdrawn

The rejections of claims 1, 22, 23, 25, 27-31, and 38-40 for new matter is withdrawn in view of Applicant's amendments changing the range of hydrophile portion of the block copolymer to approximately 1% to approximately 50%.

The rejections of claim 1 under 35 USC 102 and 103 are withdrawn in view of Applicant's amendments requiring antimicrobial drugs.

Claim Objections

Claim 1 is objected to because "forscornat" is misspelled. The correct spelling appears to be "foscarnet", see specification at page 12, line 45.

Claims 39 and 40 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 39 and 40 depend from claims 1 and 37, respectively, and ostensibly further limit these claims by requiring that the recited nucleic acid molecules are "isolated nucleic acid molecules". This is not considered to be a further limitation because one of ordinary skill in the art

when reading claims 1 and 37 would readily understand that the recited nucleic acids must be isolated. One of ordinary skill in the art understands "isolated nucleic acids" generally to mean nucleic acids that are removed from cells. It is clear that the composition of claim 1 is not found in a cell, and that the method of claim 37 does not involve the delivery of cells to animals, so one of ordinary skill would understand tat the recited nucleic acids must be isolated. Cancellation of claims 39 and 40 is recommended.

Note also that claim 40 recites "the nucleic acid molecule" without proper antecedent basis. Claim 40 depends from claim 37 which recites "an expression vector". One of skill in the art would understand "the expression vector" of claim 40 to be "the nucleic acid molecule" of claim 37, but claim 40 would be clearer if it "expression vector" were substituted for "nucleic acid".

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 22, 23, 25, 27-31, 37, and 38-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 22, 23, 25, 27-31, 37, and 38-40 recite "the hydrophile $(C_2H_4O)_b$ portion of the block copolymer without proper antecedent basis. There are two hydrophile portions $(C_2H_4O)_b$ in the copolymer, so it is not clear if the claim refers to just one, or to

both portions. It is suggested that the relevant portion of these claims should be rewritten as: "the hydrophile $HO(C_2H_4O)_b$ portions of the block copolymer, represented by the polyoxyethylene portions of the block copolymer, ~~is~~ together are approximately 1% to approximately 50% of the total weight of the block copolymer,"

Claims 1, 22, 23, 25, 27-31, 37, and 38-40 are indefinite because they recite Markush groups written in the format "selected from the consisting of " followed by a list of species and the phrase "or a combination thereof", or the phrase "or a mixture thereof". Use of the conjunction "or" before the last species renders the claims indefinite because it is unclear what is and is not a member of the Markush group.

Claims 28, 29, and 31 are indefinite because they require that the "one or more nucleic acid molecules encode a gene". These claims depend from claim 25 which excludes genes from the genus of "one or more nucleic acid molecules". As a result the "one or more nucleic acid molecules" of claims 28, 29, and 31 cannot comprise a gene.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 23 is rejected under 35 U.S.C. 102(e) as being anticipated by Allison et al (US Patent 5,376,369, issued 12/27/94).

Allison taught that Pluronics L101, L121, and L122, could be used as an adjuvant in the delivery of whole viruses in vivo as vaccines (see abstract, and column 23, lines 24-55, especially, lines 30, 31, 34, 36, 38, 46, and 55). Note that L101 and L122 are the trade names for CRL 8131 and CRL 8142, respectively which are within the claimed range of poloxamers. Whole viruses comprise nucleic acids encoding genes. Absent evidence to the contrary, these genes are normal copies of genes which, in mutant viruses, are defective. As a result, Allison is considered to meet the claim limitation requiring supply of a normal copy of a defective gene to an animal. Note that the claim does not require that the gene be a normal copy of one of the animal's defective genes. a gene from the animal.

Thus Allison anticipates the claim.

Claim 23 is rejected under 35 U.S.C. 102(e) as being anticipated by Wasmoen et al (US Patent 5,656,275, issued 8/12/97).

Wasmoen taught that Pluronic L121 could be used as an adjuvant in the delivery of whole viruses in vivo (see column 3 line 66 to column 4, line 28). The whole viruses are raccoon pox viruses modified to express a feline infectious peritonitis virus antigen. comprise nucleic acids encoding genes, and can be considered expression vectors. Wasmoen exemplifies a virus in which the antigen is expressed and incorporated into the viral particle, prior to administration of the virus to a recipient animal. However, absent evidence to the contrary, the virus of Wasmoen is capable of infecting cells in vivo and subsequently producing a foreign antigen in infected cells in vivo, as well. The genes of the recombinant pox virus of Wasmoen are considered to be wild type, i.e.

"normal" as required by the claim. Absent evidence to the contrary, these normal genes can be defective in mutant viruses, so Wasmoen is considered to meet the claim limitation requiring supply of a normal copy of a defective gene to an animal. Note that the claim does not require that the gene be a normal copy of one of the animal's defective genes.

Thus Wasmoen anticipates the claim.

Response to Arguments

Applicant's arguments filed 1/13/05 have been fully considered but they are not persuasive.

Applicant addresses the rejections at pages 13 and 14 of the response. Applicant argues that deletion of "expression vector" from the claims overcomes the rejections. This is unpersuasive because the claims still recite "genes", and the viruses of Allison and Wasmoen both encode genes. The rejections are maintained.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 25, 27, 28, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US Patent 5,470,568).

Lee taught a method for increasing the efficiency by which plasmids or antisense nucleic acids are incorporated into living cells comprising (a) permeabilizing the membranes of the cells; (b) exposing the cells to the plasmids or antisense nucleic acids; and (c) either before, during or after the performance of steps (a) and (b), administering to the living cells a composition comprising a poloxamer having a molecular weight of between about 2,000 and about 20,000 Daltons and from about 45% to 95% hydrophobic groups by weight of the copolymer. See claims 20-22; and column 10, lines 41-50. It follows that the claims are directed to poloxamers of 5%-55% hydrophile in the hydrophobe constitutes 900-19000 Da of the molecular weight of the poloxamer. Note that "poloxamer" is a term of art describing copolymers of the general structure set forth in the instant claim, i.e. $HO(C_2H_4O)_b(C_3H_6O)_a(C_2H_4O)_bH$.

Lee did not teach a composition comprising the poloxamer and the nucleic acid. However, Lee taught that the poloxamer and nucleic acid could be added simultaneously to the cells, see claims 20-22. So, it would have been obvious to one of ordinary skill in the art to add the nucleic acid and the poloxamer together in the same composition. One would have been motivated to do so because this would allow the method to be completed in a single step.

Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US Patent 5,470,568) in view of Felgner et al (US Patent 5,459,127).

Lee taught a method for increasing the efficiency by which plasmids or antisense nucleic acids are incorporated into living cells comprising (a) permeabilizing the

membranes of the cells; (b) exposing the cells to the plasmids or antisense nucleic acids; and (c) either before, during or after the performance of steps (a) and (b), administering to the living cells a composition comprising a poloxamer having a molecular weight of between about 2,000 and about 20,000 Daltons and from about 45% to 95% hydrophobic groups by weight of the copolymer. See claims 20-22; and column 10, lines 41-50. It follows that the claims are directed to poloxamers of 5%-55% hydrophile in the hydrophobe constitutes 900-19000 Da of the molecular weight of the poloxamer. Note that "poloxamer" is a term of art describing copolymers of the general structure set forth in the instant claim, i.e. $HO(C_2H_4O)_b(C_3H_6O)_a(C_2H_4O)_bH$.

Lee did not teach a composition comprising the poloxamer and the nucleic acid, or delivery of a nucleic acid to cells in vivo.

Felgner taught the delivery of genes or antisense oligonucleotides to cells in vivo. See e.g. claims 50, 51, and column 18, lines 45-63. Delivery is facilitated by treating the cells with a composition comprising cationic lipids and nucleic acids. This allows entry of the nucleic acids into the cells, i.e. it renders the cells permeable to the nucleic acids.

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the poloxamer of Lee to the composition of Felgner. One would have been motivated to do so because the poloxamer of Lee improves efficiency of transfection of permeabilized cells by improving the rate of survival of these cells. See e.g. column 10, lines 41-42.

Conclusion

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner(s) should be directed to Richard Schnizer, whose telephone number is 571-272-0762. The examiner can normally be reached Monday through Friday between the hours of 6:00 AM and 3:30. The examiner is off on alternate Fridays, but is sometimes in the office anyway.

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Andrew Wang, can be reached at (571) 272-0811. The official central fax number is 571-273-8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Richard Schnizer, Ph.D.